

From wang!elf.wang.com!ucsd.edu!info-hams-relay Fri Apr 5 20:51:47 1991 remote
from tosspot
Received: by tosspot (1.64/waf)
 via UUCP; Fri, 05 Apr 91 23:00:32 EST
 for lee
Received: from somewhere by elf.wang.com id aa06531; Fri, 5 Apr 91 20:51:47 GMT
Received: from ucsd.edu by relay1.UU.NET with SMTP
 (5.61/UUNET-shadow-mx) id AA06207; Fri, 5 Apr 91 12:21:14 -0500
Received: by ucsd.edu; id AA20408
 sendmail 5.64/UCSD-2.1-sun
 Fri, 5 Apr 91 07:21:39 -0800 for brian
Received: by ucsd.edu; id AA20386
 sendmail 5.64/UCSD-2.1-sun
 Fri, 5 Apr 91 07:21:31 -0800 for /usr/lib/sendmail -oc -odb -oQ/var/spool/
lqueue -oi -finfo-hams-relay info-hams-list
Message-Id: <9104051521.AA20386@ucsd.edu>
Date: Fri, 5 Apr 91 07:21:29 PST
From: Info-Hams Mailing List and Newsgroup <info-hams-relay@ucsd.edu>
Reply-To: Info-Hams@ucsd.edu
Subject: Info-Hams Digest V91 #271
To: Info-Hams@ucsd.edu

Info-Hams Digest Fri, 5 Apr 91 Volume 91 : Issue 271

Today's Topics:

(none)

Volume 91 : Issue 271

Alinco DR-590T
ATV: AM or FM
Boy Scout RADIO Merit Badge (2 msgs)
FORSALE: amateur radio gear
Icom IC-W2A Broad-Band Frequency Sensitivity
Icom IC-W2A Frequency Mod (2 msgs)
Icom IC-W2A Frequency Ranges and Sensitivities
Oscilloscope (some help..)
UHF Repeater Amps
Ultrasonics.

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available (by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text herein consists of personal comments and does not represent the official policies or positions of any party. Your mileage may vary. So there.

Date: 5 Apr 91 14:00:39 GMT
From: news-mail-gateway@ucsd.edu
Subject: (none)
To: info-hams@ucsd.edu

Date: 04 Apr 91 15:22
Message-ID: <496@KA1SRD>
From: W10J@KA1SRD
To: QRM@USBBS
Subject: 10 MTR BAND INDUSTRIAL INVASION!
Path: K1UGM!K1CF!KC1PK!KA1SRD

HELP! Industry is invading our 10 Meter band! There are several industrial RF devices, perhaps poorly configured RF thermoplastic sealing machines, which have invaded our 10 Meter amateur band. You may not even be aware of it, but some of the serious noise, swishing, buzzes, squeals and drifting garbage is what we NEED TO LOCATE and have the FCC take action on.

I feel that I can provide some general information on the matter, but we need YOUR HELP too. My amateur activity on 10 Meters, and yagi antenna has given me a fairly good feel for which general part of the country that the worst industrial interference is coming from. Before I continue, keep in mind where I receive from, (Massachusetts) and that you may or may not be in the proper skip area. Lets hope that someone may be near enough to hear the offender(s) on GROUNDWAVE! I ONLY hear it when the band is open to the general area described below, AND IT'S STRONG!

When the band is open from my area to the South Central part of the continent (perhaps Texas or New Mexico) I hear most of this trash. Specifically, what you will hear are unstable, cyclic and drifting AC modulated signals cross great portions of 28.5 to 29.5 Mhz.

Gathering accurate information on the specific problem is a must if we are to keep our bands clean. Although everyone's effort is important, please don't provide the FCC with "wild guesswork". The closer we are able to get to the actual industrial firm or acutal address, the better. I would be very interested in hearing from anyone that has a GOOD IDEA where this junk is coming from. The FCC should be contacted too, of course.

Lets get industry off our non-shared band! 73, Roger, W10J.
Packet mail at: W10J@KA1SRD.MA.USA.NA

Date: 5 Apr 91 01:57:47 GMT
From: agate!apple!usc!rpi!zaphod.mps.ohio-state.edu!sol.ctr.columbia.edu!emory!
wa4mei!ke4zv!gary@ucbvax.berkeley.edu
Subject: Alinco DR-590T
To: info-hams@ucsd.edu

In article <".2-Apr-91.14:05:15.EST".*.Louis_J_Kohnen.WBST128@Xerox.com>
K2ANC.Wbst128@xerox.com writes:

>
>question: Am I likely to encounter similar (or dissimilar) problems with a new
>590? The Drake rig I have in my car now has worked perfectly for 13+ years, I
>don't want a rig that fails in its infancy, warranty or not.

Infant mortality is a common problem with modern complex radios, or any other high tech marvel for that matter. If they make it through the warranty period, the odds are good that they will work for a long time. Icom, Kenwood, Yaesu, even Motorola and GE, are plagued with this problem. There is no panacea, if you want reliability, go for simplicity. The less there is, the less that can break. My 570 has held up fine.

>My second concern
>is based on the fact that the 570 has a built-in duplexer with a single antenna
>connector; the 590 has separate connectors. Why? Is there a problem with using
>a dual band antenna or did they do this to reduce cost? ANY comments, pro or
>con, regarding the 590 will be appreciated and considered in my decision. Tnx
>es 73,

Different consumers want different features. The 570 also comes factory stock with a CTCSS decoder, the 590 does not. Some folks plan to use a dual band antenna and find the built in duplexer a convenience. Others want to use separate antennas. Alinco builds radios for each of them.

My experience with the 570 has been positive. I have found little to complain about and much to praise. A friend with a 590 is equally happy. I've had very bad experiences with Kenwood radios. Those of you who recall my battles with the TS790 will be glad to know that I finally unloaded that lemon. I've had extremely good luck with Icom radios. I've been quite happy with Yaesu radios. I loved my old Drakes. But I have never had a truly problem free radio. That's the nature of technical toys.

My advice is to go for it.

Gary KE4ZV

Date: 5 Apr 91 13:37:03 GMT

From: pa.dec.com!rust.zso.dec.com!shlump.nac.dec.com!sousa.enet.dec.com!

sndpit.enet.dec.com!smith@decwrl.dec.com

Subject: ATV: AM or FM

To: info-hams@ucsd.edu

In article <1991Apr5.004756.17758@ux1.cso.uiuc.edu>, phil@ux1.cso.uiuc.edu (Phil Howard KA9WGN) writes...

>smith@sndpit.enet.dec.com (Willie Smith) writes:

>A lot of ATVers use B&W. It's cheaper in many cases. However a lot do
>use color. I hear them commenting (listen in on 144.34 in the Midwest)
>about signal levels that "come in in color".

I plan on using color, but mostly because it's a step up from my current B&W camera on my little teleop vehicle. Since I'm simulating Lunar operations, B&W is a pretty good simulation, but I wouldn't mind having color to see 'artificial structures' such as people and other vehicles.

>The color subcarrier is modulated in quadrature with TWO different signals,
>so BOTH sidebands are needed.

Oops, I knew I didn't know all the details about color, how much bandwidth _does_ a color signal need?

>To fit withing a total of 6 MHz, you will have to limit sidebands to 3 MHz
>on a symmetrical signal. AM and FM are both symmetrical. That means you
>cannot have color on EITHER, and the FM deviation will probably have to be
>well under 1 MHz.

>

>Vestigial SideBand (VSB) is used by broadcast TV to fit within 6 MHz.

I'm familiar with VSB, but it seems that most amateur AM TV gear is DSB, and people use it because "The extra sideband is down far enough that it's not going to bother anyone." I was hoping to set the deviation of the FM TV signal so that the bandwidth was 6 MHz at -40 dB, and assume the extra sidebands are down far enough that they won't bother anyone... Does this buy me anything, or are the FM sidebands more significant than that?

>My concern is that to get decent quality out of FM ATV the deviation will
>have to be cranked up (perhaps at least 6 MHz).

Hmm, has anyone out there done this or are we breaking new ground here?

>FM ATV does have some notable advantages, such as the lack of sync
>compression problems.

And the easy use of FM amplifiers, and the lack of expensive and bulky VSB

filters, and higher average power. All of which are the reasons I want to use it (hey, AM is old hat, I wanna be on the bleeding edge!).

Willie Smith
smith@sndpit.enet.dec.com
smith%sndpit.enet.dec.com@decwrl.dec.com
{Usenet!Backbone}!decwrl!sndpit.enet.dec.com!smith

Date: 5 Apr 91 13:18:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: Boy Scout RADIO Merit Badge
To: info-hams@ucsd.edu

I got the Radio Merit Badge in 1956 using those very requirements. I learned the Morse Code at scout camp one summer (where, incidentally, the counselor who taught the code had a 75A4/KWS1 station - more money than I'd ever seen in one place at one time - HI) and got my novice in 1957 (as KN4RMT).

The requirements are somewhat different now, having an option for either radio/TV broadcasting or a ham radio focus. I'm still a Radio Merit Badge counselor (and the Council Advancement Chairman - General Greene Council in Greensboro, NC).

steve - W3GRG

Date: 5 Apr 91 13:10:00 GMT
From: usc!sdd.hp.com!spool.mu.edu!cs.umn.edu!uc!shamash!timbuk!raphael!
wws@ucsd.edu
Subject: Boy Scout RADIO Merit Badge
To: info-hams@ucsd.edu

In article <hq+g-rk@rpi.edu>, luigi@aix01.aix.rpi.edu (John L Luigi Giasi) writes:

> Unfortunately now (and when I was of merit-badge eligibility) the Radio
> Merit badge has been steered toward SWLings. I got the badge but didn't
> become a ham until 10 years later.

I actually did earn the "Radio" merit badge too, along with the Electronics and Computers badges. The only ones ever awarded in the history of our troop. (Sheesh - what a geek...) I built a BFO for an old AM SWL radio (that didn't work) and a couple of other kits including a Knight Kit 6 meter AM rig - which was never used. (Just sold the KK at a hamfest a few weeks ago...)

I still remember the Computers merit badge book. It had a picture of the front panel of an ancient IBM 7094 and a geeky-looking '50s kind o' guy (black-rimmed glasses, IBM suit) showing a scout a listing or something. They had plans for a do-it-yourself card reader (made from aluminum foil and light bulbs) inside. But now we're drifting into alt.computers.folklore...

The morse code test was a requirement for 1st class scout. People kept trying to get me to teach the class (because no one else wanted to), but I kept flunking everyone (Jr. G Man here - this was back when you had to go to the FCC to get a ham license). Kids were starting to drop out of the troop because of this, so they removed me as instructor and put in someone else who would pass everyone.

Do scouts have 'no-code' ratings these days? Starnocode, lifenocode, or eaglenocode?

> Oh yeah back to the topic at hand, not enough scouts were becoming
> hams (or not enough hams were showing up at scout meetings to show
> scouts the joys of ham radio, so national BSA softened the requirements)

I also attended the World Jamboree in Japan (1971?) There was quite a bit of activity at the ham radio station. I didn't have a license at the time, so couldn't operate. :-(I noted that the Japanese had lots of strange equipment that wasn't available in the US...
I still have my 'Japan Boy Scout ARC' neckerchief slider somewhere at my parents house. I got dinged at several of those 'inspection's because it wasn't 'official BSA'.

Walt

Walt Spector
(wws@renaissance.cray.com)
Sunnyvale, California

"Parity is for farmers"
- Seymour Cray

-.- -.- -.- - - -.

Date: 5 Apr 91 14:35:34 GMT
From: duke!zielke@mcnc.org
Subject: FORSALE: amateur radio gear
To: info-hams@ucsd.edu

FORSALE:

Kenwood 820 tranceiver, fox tango filters, kenwood mike,
digital display, spare 6146W tubes (mil spec),
external speaker, external VFO

Heath Cantenna (dummy load)

Coax switch

SWR meter (5,50,500 watt ranges)

Make me an offer, if not interested, let me know what it is worth...

David Zielke
zielke@cs.duke.edu
zielke@physics.phy.duke.edu

Date: 4 Apr 91 03:17:21 GMT
From: elroy.jpl.nasa.gov!usc!rpi!bu.edu!transfer!lectroid!jjmhome!zinn!ubbs-nh!
wa1omm!paul@ames.arpa
Subject: Icom IC-W2A Broad-Band Frequency Sensitivity
To: info-hams@ucsd.edu

Here is a plot of frequency vs sensitivity on a randomly selected
Icom IC-W2A dual-band handheld. The results were released by
Icom today:

Frequency Range	Sensitivity Range
60-80 MHz	2200 uV to 1 uV
80-108 MHz	1 uV to less than .1 uV
108-175 MHz	less than .1 uV
175-190 MHz	.1 uV to 1 uV
190-195 MHz	1 uV to .1 uV
195-215 MHz	.1 uV to .4 uV
215-220 MHz	.4 uV to .2 uV
220-235 MHz	.3 uV
235-250 MHz	.3 uV to .4 uV
250-255 MHz	.4 uV to 2000 uV
255-525 MHz	less than 1 uV
440-450 MHz	less than .1 uV
525-575 MHz	1 uV to 4 uV
575-760 MHz	4 uV to 20,000 uV
760-780 MHz	20,000 uV to 3 uV
780-830 MHz	3 uV to 1 uV
830-960 MHz	1 uV
960-999 MHz	1 uV to 2 uV

[Info provided by Bill Everett - K7RIE]

--

73, Paul

Date: 3 Apr 91 03:19:56 GMT

From: agate!apple!usc!rpi!bu.edu!transfer!lectroid!jmhome!zinn!ubbs-nh!wa1omm!
paul@ucbvax.berkeley.edu
Subject: Icom IC-W2A Frequency Mod
To: info-hams@ucsd.edu

This is less of a mod than it is a function. To expand the receiver frequency range of the new Icom IC-W2A to 118.00-170.00, 322.00-513.00, and 800.000-970.000, do the following:

- o Hold down the Light, B, and # keys while turning the power on.

That's actually a four button sequence, since power on is controlled by a keypad button.

--

Date: 5 Apr 91 14:46:07 GMT
From: aviator@athena.mit.edu
Subject: Icom IC-W2A Frequency Mod
To: info-hams@ucsd.edu

In article <paul.5522@wa1omm.UUCP> paul@wa1omm.UUCP (Paul MacDonald) writes:
>This is less of a mod than it is a function. To expand the receiver
>frequency range of the new Icom IC-W2A to 118.00-170.00, 322.00-513.00,
>and 800.000-970.000. do the following:

Does this handheld have an AM circuitry like the Kenwood TH-27A for use with the aircraft band (118-136 MHz AM)?

Thanks...Joakim

--
Joakim Karlsson | aviator@athena.mit.edu
Flying Fanatic in Training |
 "Oh, I have slipped the surly bonds of earth
 And danced the skies on laughter-silvered wings"

Date: 4 Apr 91 18:28:46 GMT
From: elroy.jpl.nasa.gov!usc!rpi!bu.edu!transfer!lectroid!jjmhome!zinn!ubbs-nh!
walomm!paul@ames.arpa
Subject: Icom IC-W2A Frequency Ranges and Sensitivities
To: info-hams@ucsd.edu

Icom IC-W2A frequency range sensitivity. This is better data than previous posting:

VHF Receiver

60 MHz to 90 MHz - The sensitivity drops from 2200 uV to 1 uV
90 MHz to 120 MHz - The sensitivity drops from 1 uV to less than .4 uV
120 MHz to 170 MHz - The sensitivity is less than .4 uV
140 MHz to 150 MHz - The sensitivity is less than .2 uV
150 MHz to 170 MHz - The sensitivity is less than .3 uV
170 MHz to 245 MHz - The sensitivity varies from 50 uV to 900 uV
245 MHz to 265 MHz - The sensitivity peaks at 1950 uV
265 MHz to 325 MHz - The sensitivity varies from 12 to 30 uV
325 MHz to 395 MHz - The sensitivity varies from 95 to 500 uV

UHF Receiver

328 MHz to 440 MHz - The sensitivity varies from .7 uV to 1.5 uV
440 MHz to 450 MHz - The sensitivity averages less than .15 uV
450 MHz to 525 MHz - The sensitivity averages less than 1.3 uV
530 MHz to 690 MHz - The sensitivity is very high (RX is deaf)
700 MHz to 810 MHz - The sensitivity averages 5 uV
810 MHz to 820 MHz - The sensitivity averages 2.5 uV
820 MHz to 999 MHz - The sensitivity averages less than 1 uV

[This is slightly different data than I posted earlier because I had the raw data available to me when I did this message.

Bill K7RIE]

--

73, Paul

From the shack of Paul MacDonald! Packet Radio: WA1OMM@KB4N.NH.USA
/ _ / \ / /~\ / \/\ \ / \ \ / \ / \ / \ (~ / / / / \ \ / \ / /
\ \ / /~\ / /__ / / / / ~ / V /~\) /~/ /_ /~\ , / V /~\
Internet: ...ubbs-nh!wa1omm!paul CIS: 70411,626 PLink: UPPERCUST

Date: 2 Apr 91 15:31:37 GMT

From: bloom-beacon!eru!kth.se!cyklop.nada.kth.se!news@ucbvax.berkeley.edu
Subject: Oscilloscope (some help..)
To: info-hams@ucsd.edu

Hi,

I think I could use some help.

The story:

A friend of mine gave me a present: An old oscilloscope he found on his attic. I was VERY pleased :-)

The small problem:

It's a kit, I'll have to put the parts together first. It looked like an easy match (A soldering iron doesn't frighten me). I was optimistic :-)

The big problem:

I haven't found any sign of a part-list, electrical circuit description or drawing yet. And (I inspected the box real good) there won't be either.

I don't dare to start anything without T am :-)

Question:

So if anyone of you did this kit or has any information about how all these zillion parts - nicely packed in plastic bags - are intended to be put together, I would be pleased to share the info (and stand for photocopies etc. of course).

clues:

Oscilloscoperite model 255

Conar Instruments

Washington, D.C. 20016

(printed on the back plate)

Mail me (instead of Re:) if possible.

With a faint hope.

Harald

d88-hba@nada.kth.se

PS: I'm ; -) again.

Introducion to smilies: Tilt your head 90deg to the left and look again :-)

Date: 5 Apr 91 14:24:11 GMT
From: sdd.hp.com!uakari.prmate.wisc.edu!caen!math.lsa.umich.edu!
spsd4360a.erim.org!hideg@ucsd.edu
Subject: UHF Repeater Amps
To: info-hams@ucsd.edu

There is a company that advertizes in 73 called TE Systems.
I gave them a call. Seems that they sell a 440MHz repeater amp
rated at 10Win/100Wout. It is a bare bones class-C amplifier
with no relays. Price about \$490.

Does anyone out there own one of these puppies? What's your
experience with them?

Any recommendations for other manufacturers?

I have an Icom RP-3010 that puts out 10W nominally.

Thanks!

Steve Hideg N8HSC

hideg@spsd4360a.erim.org

Date: 5 Apr 91 14:28:06 GMT
From: sdd.hp.com!news.cs.indiana.edu!att!cbnewse!parnass@ucsd.edu
Subject: Ultrasonics.
To: info-hams@ucsd.edu

In article <1991Apr4.164309.21711@math.lsa.umich.edu>, hideg@spsd4360a.erim.org
(Steve Hideg (Mr. Fabulous)) writes:

> I think there was an article in one of the U.S. electronics magazines
> about building
> such a device.

Several people have written for more information concerning
the ultrasonic receiver I built. I bought a parts
kit for my ultrasonic receiver from:

Krystal Kits

PO Box 445
Bentonville, Arkansas 72712

I paid \$34.95 by personal check and it took over 4 weeks for the parts to arrive. Sorry, I don't have a telephone number for Krystal Kits. Their last PE advertisement appeared in the February 1989 issue. A Krystal Kits catalog is available for \$1, although I requested and received a free catalog with my order.

The 4 page Popular Electronics article, "The Ultrasonic Receiver," was written by Charles D. Rakes, and perhaps Krystal Kits is his own company, but I don't know.

The new Popular Electronics, combined with Hand-On Electronics, is published by:

Gernsback Publications, Inc
500-B Bi-County Blvd.
Farmingdale, NY 11735
tel. (516)293-3000

Reprints of articles are available for \$.50/page plus
\$1.25 shipping from:

Popular Electronics
Reprint Bookstore
P.O. Box 4079
Farmingdale, NY 11735

I am not affiliated with, nor have a financial interest in either of these companies.

Happy (ultrasonic) monitoring!

--

=====

Bob Parnass, AJ9S - AT&T Bell Laboratories - att!ihlpy!parnass (708)979-5414

Date: 4 Apr 91 22:21:28 GMT
From: agate!stanford.edu!eos!aio!jrsargeant@ucbvax.berkeley.edu
To: info-hams@ucsd.edu

References <22149@yunexus.YorkU.CA>, <2971@ksr.com>, <1596@aupair.cs.athabascau.ca>
Subject : Re: Antenna Matching Gedanken Experiment

In <1596@aupair.cs.athabascau.ca> rwa@cs.athabascau.ca (Ross Alexander) writes:

>Lately there's been some talk in this group about antenna matching, >SWR values, and so on. Someone (sorry, didn't save the article) >mentioned that SWR didn't really matter, since the reverse wave >reflecting from a mismatched load just bounced off the transmitter as >well, and that worrying about getting a low SWR was really not very >important - all the power went out the antenna eventually. I believe >a book called 'Reflections' was mentioned as an authority.

>This sort-of sounded reasonable (if you ignore the losses in the coax, >which at HF and SWRs less than 10 are probably not much to speak of). >Then I did a little gedanken experiment that got me wondering again.

>Say one has a rig driving a chunk of (lossless) coax, said coax being >terminated in either a dead short or an open - the intent is to get >perfect reflection. OK, so the SWR is infinite. All the power stays >in the transmitter. Things get hot!

>Tying that back to the real world, it happens that for a while I was >running an antenna that loaded well on 80, 40, 20, & 10 but very >poorly on 15. The fans in my rig ran much harder when working on 15. >The heatsinks got hotter. Perhaps my rig didn't read that book...

>In short, I have some real doubts about this claim that the SWR >doesn't much matter. Could we have some explanation please? Tnx.

>--

>Ross Alexander rwa@cs.athabascau.ca (403) 675 6311 ve6pdq

am havin

The theory about high SWR not being a problem is correct (in theory.) It is true that all of the power which is delivered to the feedline is eventually delivered to the load less any feedline losses. It is also true that a modern transmitter will not work well when a high SWR exists on the feed line. The problem is that when there is a high SWR on the feed line, the transmitter is seeing an impedance mismatch at its output port and can not deliver the power to the feed line. Now you have heating of the

finals, less power to the feed line, etc. Some of the older transmitters with wide range matching networks in the output, such as swinging links, were perfectly

happy with high SWR's.

Now I've probably really confused you, but I tried.

73,

Sarge W0RIJ

UN... I wonder if it's NET FUN or GROSS FUN?" -- Zippy

Date: 5 Apr 91 14:09:13 GMT

From: swrinde!elroy.jpl.nasa.gov!usc!apple!uokmax!skaggs@ucsd.edu
To: info-hams@ucsd.edu

References <2971@ksr.com>, <1596@aupair.cs.athabascau.ca>,
<jrsargeant.670803688@node_d3ff>
Subject : Question Pool request (Weekly Posting)

I am looking for the question pool, with or without correct answers. Needs to be ftp-able and readable in ascii. If found, I WILL make it available by mail and anonymous ftp.

Any clues appreciated.-

Gary Skaggs - WB5ULK skaggs@nssl.gcn.uoknor.edu DOC/NOAA/ERL/NSSL
"Listen, I'm a politician. That means I'm a cheat and a liar, and
when I'm not kissin' babies, I'm stealin' their lollipops..."
Jeffery Pelt, The Hunt for Red October.

Date: 5 Apr 91 14:48:23 GMT
From: usc!wuarchive!uwm.edu!ux1.cso.uiuc.edu!sc80@ucsd.edu
To: info-hams@ucsd.edu

References <2971@ksr.com>, <1596@aupair.cs.athabascau.ca>,
<18255@crdgw1.crd.ge.com>
Subject : Re: Antenna Matching Gedanken Experiment

mallick@ethiopia (john a mallick) writes:

>In article <1596@aupair.cs.athabascau.ca>, rwa@cs (Ross Alexander) writes:
>>Lately there's been some talk in this group about antenna matching,
>>SWR values, and so on. Someone (sorry, didn't save the article)

>[...deleted...]

>>Then I did a little gedanken experiment that got me wondering again.

>>

>>Say one has a rig driving a chunk of (lossless) coax, said coax being
>>terminated in either a dead short or an open - the intent is to get
>>perfect reflection. OK, so the SWR is infinite. All the power stays
>>in the transmitter. Things get hot!

>>

>>Tying that back to the real world, it happens that for a while I was
>>running an antenna that loaded well on 80, 40, 20, & 10 but very
>>poorly on 15. The fans in my rig ran much harder when working on 15.
>>The heatsinks got hotter. Perhaps my rig didn't read that book...

>>

>[...deleted...]

>OK, I'll take a shot at this. The lossless, unterminated coax can't
>absorb any time-average power since it appears as a pure reactance
>(either capacitive or inductive, depending upon the length). In a pure
>reactance, the voltage and current are 90 degrees out of phase.

>Because this reactance presents some value of impedance at chosen
>operating frequency, the rig will try to load into it, but there is no
>time-average power transfer at RF. However, there is dissipation due
>to ohmic ($i^2 R$) losses in the passive components like coils and
>capacitors, and there is dissipation in the active final devices
>(transistors) due to current flow through the device with a finite
>voltage across it (time average $v * i$ over once cycle). When feeding
>a reactive load, the device dissipation can be much higher than
>normal, since the phase relationship between v and i is not what the
>designers intended. This is NOT reflected power going back in a
>burning up the finals; it's just that device dissipation usually
>increases when it is presented with a reactive load instead of a resistive
>one. For the old-timers, the load line goes from a "line" to a
>"circle".

I would contend that everybody is a little bit right/wrong to some extent. When a load is mismatched to a load, even without a transmission line and reflections, there is power lost in the effective internal resistance of the generating device. When you add a transmission line with reflected power, a portion of that reflected power (depending on back impedance match) is also absorbed in the internal resistance of the generator. Finally, no coax is lossless, and those losses increase with frequency and SWR. Thus the strenuous effort to minimize VSWR from the earliest days of radio, long before finicky transistors. Only when the whole system, from output device to antenna coupling to the "either" (ie. universe) is properly matched is the maximum amount of power transferred (radiated). K9ALD.

>Hope this helps a bit.

>John Mallick WA1HNL

>(mallick@crd.ge.com)

End of Info-Hams Digest
